

# Number of subsets of a set of size $n$

Algorithm to generate the subsets of a set

$$S = \{s_1, s_2, s_3, \dots, s_n\}$$

- For  $i=1$  up to  $n$  DO:
  - Decide if you will include  $s_i$

Analysis: each subset is generated exactly once, and the number of ways to apply the algorithm is  $2 \times 2 \times \dots \times 2 = 2^n$ .